

WHAT IS CLAIMED IS:

1. A method for increasing the sensitivity of an in-line infrared sensor, comprising:
interposing a slot within an optical element to intercept a radiation path, said slot being perpendicular to said radiation path; and
inserting said optical element directly in a process stream to determine an amount of absorption of a sample in said process stream.
2. The method according to claim 1, wherein said optical element has a truncated cone shape.
3. A method for increasing the sensitivity of an in-line infrared sensor, comprising:
placing a prism in contact with a base of an optical element capable of causing a beam originating from a source to be internally reflected at least twice through said optical element and terminate at a detector; and
placing said optical element in a process stream.
4. The method according to claim 3, wherein said prism, said source, and said detector are ninety degrees apart from each other and in contact with said base.
5. An in-line infrared sensor having increased sensitivity, comprising:
an optical element having a slot capable of intercepting a beam between internal reflection points of said optical element;
wherein said optical element is insertable directly in a process stream so that radiation is absorbed by a sample in contact with said slot.
6. The in-line infrared sensor according to claim 5, wherein said optical element has a truncated cone or prism shape.
7. The in-line infrared sensor according to claim 5, wherein said slot is perpendicular to said beam.
8. An in-line infrared sensor having increased sensitivity, comprising:
an optical element having a base;
a prism in contact with said base;
a source in contact with said base and ninety degrees away from said prism; and
a detector in contact with said base and ninety degrees away from both said source and said prism;

wherein a beam originates from said source, passes twice through said optical element, and terminates at said detector.

9. The in-line infrared sensor according to claim 8, wherein said optical element is insertable directly in a process stream to determine an amount of absorption of a sample in said process stream.

10. The in-line infrared sensor according to claim 8, wherein said optical element has a truncated cone shape.

11. The in-line infrared sensor according to claim 8, wherein said optical element has a sixty degree face.

12. The in-line infrared sensor according to claim 8, wherein said prism has a forty-five degree face.